

REMARKS

Claims 1-13 are elected for examination. Claims 1-6 and 9 have been amended to more clearly define the claimed invention.

Claims 1, 2, 4, 6, and 9-12 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Sekiguchi et al. in view of Ueyama.

Dependent claim 3 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Sekiguchi et al. and Ueyama, and further in view of Heshmat et al.

Dependent claim 5 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Sekiguchi et al. and Ueyama, and further in view of Takahashi et al.

Dependent claim 6-8 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Sekiguchi et al. and Ueyama, and further in view of Lewis et al.

Dependent claim 13 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Sekiguchi et al. and Ueyama, and further in view of Suzuki et al.

It is noted that despite Applicant's request in the previous Office Action, the Lewis et al. reference is still not listed on the PTO-892 form attached to the Office Action.

The Examiner's rejection is respectfully traversed for the following reasons.

Claim 1, as amended, recites a magnetic bearing device comprising:

- a rotary shaft carrying a fan rotating at a variable speed in a chamber holding a variable gas pressure;

- a motor rotating said rotary shaft;

- a magnetic bearing holding said rotary shaft; and

- a control circuit changing a parameter in feedback control performed for holding said rotary shaft in a position allowing stable rotation of said fan, to a numeric value calculated based on a magnitude of a load applied to said magnetic bearing.

It is noted that claim 1 has been amended to more clearly indicate that the numeric value is calculated based on a magnitude of a load applied to the magnetic bearing. It is submitted that no new issue is added because one skilled in the art would realize that the load is characterized by its magnitude.

The Examiner contends that Sekiguchi et al. comprises the rotary shaft, motor and magnetic bearing. However, he admits that this reference does not disclose the control circuit operating in the claimed manner.

A newly applied Ueyama patent is relied upon for disclosing the claimed control circuit in FIG. 1. In particular, the Examiner takes the position that parameter S of Ueyama corresponds to the claimed numeric value calculated based on a load applied to the magnetic bearing.

Considering the reference, Ueyama discloses a magnetic bearing device, a control device of which is applicable to a plurality of types of machine bodies. FIG. 1 of Ueyama illustrates a flow chart of operations performed by Digital Signal Processor (DSP) 16 (FIG. 11) to determine a type of the machine body. In the magnetic bearing device of Ueyama, a type of the machine body is determined by detecting a gap between a rolling element 3 and a protective bearing 9 (steps S1-S5 in FIG. 1) to set a control parameter based on the determined result (S7-S9).

The control parameter is not calculated or changed based on a magnitude of a load applied to the magnetic bearing. Accordingly, the reference does not disclose the control circuit changing a parameter in the feedback control to a numeric value calculated based on a magnitude of a load applied to the magnetic bearing.

As indicated above, the Examiner takes the position that parameter S of Ueyama corresponds to the claimed numeric value calculated based on a load applied to the magnetic bearing.

Considering Ueyama, the DSP 16 calculates a mean value of movement spans S based on amount of movements YLp, XLp, YLn and XLn in different directions (col. 6, lines 65-67). Then, the DSP 16 determines whether the value S is in a predefined range between Smin and Smax. Finally, based on the value of S, the DSP 16 determines a type of the machine body 1 (col. 7, lines 65-66).

Therefore, Ueyama does not teach changing a parameter in feedback control to the value of S.

Accordingly, Ueyama does not teach or suggest the claimed control circuit changing a parameter in the feedback control to a numeric value calculated based on a magnitude of a load applied to the magnetic bearing, as claim 1 requires.

Sekiguchi discloses a structure for supporting a fan installed in a hermetic vessel containing a corrosive process gas therein. However, this reference neither teaches nor suggests how to control a magnetic bearing when a load is applied thereto.

It is well settled that the test for obviousness is what the combined teachings of the references would have suggested to those having ordinary skill in the art. *Cable Electric Products, Inc. v. Genmark, Inc.*, 770 F.2d 1015, 226 USPQ 881 (Fed. Cir. 1985). In determining whether a case of prima facie obviousness exists, it is necessary to ascertain whether the prior art teachings appear to be sufficient to one of ordinary skill in the art to suggest making the claimed substitution or other modification. *In re Lulu*, 747 F.2d 703, 705, 223 USPQ 1257, 1258 (Fed. Cir. 1984).

As demonstrated above, the combined teachings of Sekiguchi and Ueyama is not sufficient to suggest the claimed control circuit changing a parameter in the feedback control to a numeric value calculated based on a magnitude of a load applied to the magnetic bearing, as claim 1 requires.

Therefore, claim 1 is not obvious over this combination of references. Dependent claims 2-13 are defined over the prior art at least for the reasons presented above in connection with claim 1.

In view of the foregoing, and in summary, claims 1-13 are considered to be in condition for allowance. Favorable reconsideration of this application, as amended, is respectfully requested.

Entry of the amendments of the claims under 37 CFR § 1.116 is respectfully requested because, as discussed above, the amendments raise no new issues that would require an additional consideration, and in any event present the rejected claims in better form for consideration on appeal.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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